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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CAO, HUEDUNG X

ART UNIT

PAPER NUMBER

2671

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,502

Applicant(s)

SHAIKH, MOHAMMAD SALIM

Examiner

Huedung X Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe, U.S. Patent Number 5,995,108 as applied to claims 1-13 above, and further in view of Lorensen et al., Marching cubes: a high resolution 3D surface construction algorithm, Computer Graphics, Volume 21, Number 4, July 1987.

As per independent claim 1, Isobe teaches the claimed "a method for rendering graphic images" comprising the step of: generating a rendered image comprising only those external visible features of a computer generated model that are visible independent from a user's viewing orientation (col. 4, line 65 to col.5, line 10; col. 8. Lines 53-67). It is noted that Isobe does not explicitly teach the "external visible features" as claimed. However, Isobe's head surface image 213 (figure 9) which shows the outside surface of a person head suggests the display of only the external visible features as claimed. Furthermore, such display of only "external visible features" is well

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known for a system of hidden surface removal (Lorensen, figure 9) such as Isobe's. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of teaching of Lorensen to configure Isobe's system as claimed because the soft tissue surface display (in Lorensen's system) will allow Isobe's system represent the head surface image of a person as the "external visible features".

Claim 2 adds into claim 1: extracting topological structure and geometric information from said computer generated model (col. 2, lines 18-23), identifying internal non-visible features and external visible features from the model (col.4, line 65 to col. 5, line 48), visually displaying only said exterior visible features as said rendered image (Isobe, col.8, lines 56-67).

Claim 3 adds into claim 2: the step of linking the interior features to the visually displayed exterior feature (Lorensen, figures 3-14, page 165).

Claim 4 adds into claim 1: wherein internal components are omitted from said rendered image which Isobe fails to teach. However, Lorensen teaches that the step of identifying non-visible features and external visible features from the model are widely in the art (p.164, col.2, lines 9-12. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of teaching of Lorensen, to configure Isobe's method as claimed to decrease processing time.

Claim 5 adds into claim 1: wherein hidden components are omitted from said rendered image (Isobe, col. 11, lines 11-20).

Claim 6 adds into claim 1: wherein components of said model are compared to ascertain intersection of said components (Lorensen, p.164, col.2, line 32 to p. 165, column 1, line 27).

Claim 7 adds into claim 1: wherein first and second components of said model are compared to ascertain if said first component contains said second component (Isobe, col. 14, lines 1-14).

Claim 8 adds into claim 2: the step of determining a set of external visible features (col. 4, line 65 to col.5, line 10).

Claim 9 adds into claim 8: identifying a user-defined visual object (Isobe, fig. 9, skin tissue, bone, blood vessels).

Claim 10 adds into claim 9: at least one additional is automatically selected and compared with said user-defined visual object to ascertain if said at least one additional object intersects said user-defined visual object (Lorensen, fig. 11-12, cut surfaces).

Claim 11 adds into claim 10 comprising the step of: calculating an intersection of said external visible features (Isobe, col. 16, lines 20-25).

Claim 12 adds into claim 10: wherein a second object is compared with said user defined visual object to ascertain if said at least one additional object contains said user-defined visual object (Isobe, fig. 20-21).

Claim 13 adds into claim 12: wherein a second object is compared with said user defined visual object to ascertain if said at least one additional object is disjointed from said user-defined visual object (Isobe, defined features such as skin, bone, of blood vessels).

Accordingly, the claimed invention as represented in the claims does not represent a patentable distinction over the art of record.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, and 4-13 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 of U.S. Patent No. 6,335,732 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter on a computer graphics system renders only what the user sees and does not waste time rendering hidden components.

As per independent claim 1, a method for rendering graphic images comprising the step of: generating a rendered image comprising only those external visible features of a computer generated model that are visible independent from a user's viewing orientation (claim 1). Upon further observation, claim 1 of patent number 6,335,732 B1 has more limitations than claim 1 of the present application. Rather claim 1 of patent number 6,335,732 B1 includes the limitation of claim 1 of the present invention and with more details. Therefore, claim 1 of the present application is already disclosed in claim 1 of the patent number 6,335,732 B1.

As per independent claim 4: wherein internal components are omitted from said rendered image (claim 3).

As per independent claim 5: wherein hidden components are omitted from said rendered image (claim 3).

As per independent claim 6: wherein components of said model are compared to ascertain intersection of said components (claim 4).

As per independent claim 7: wherein first and second components of said model are compared to ascertain if said first component contains said second component (claim 5).

As per independent claim 8: the step of determining a set of external visible features (claim 6).

As per independent claim 9: identifying a user-defined visual object (claim 7).

As per independent claim 10: at least one additional is automatically selected and compared with said user-defined visual object to ascertain if said at least one additional object intersects said user-defined visual object (claim 8).

As per independent claim 11: calculating an intersection of said external visible features (claim 9).

As per independent claim 12: wherein a second object is compared with said user defined visual object to ascertain if said at least one additional object contains said user-defined visual object (claim 10).

As per independent claim 13: wherein a second object is compared with said user defined visual object to ascertain if said at least one additional object is disjointed from said user-defined visual object (claim 11).

5. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

6. Claims 2-3 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-11 of prior U.S. Patent No. 6,335,732 B1. This is a double patenting rejection.

As per independent claim 2: extracting topological structure and geometric information from said computer generated model; identifying internal non-visible features and external visible features from the model; visually displaying only said exterior visible features as said rendered image (claim 1).

As per independent claim 3: the step of linking the interior features to the visually displayed exterior feature (claim 2).

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Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Huedung Cao** whose telephone number is

(703) 308-5024.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Huedung Cao

A handwritten signature in black ink, appearing to read "Mark Zimmerman", with a long horizontal flourish extending to the right.